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THE UTILITY INDUSTRY

Its Relation to the Prosperity, Convenience and
Happiness of Every Citizen

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A Series of Papers Prepared by Students of the School
of Journalism, University of Illinois,
upon the Subject

"The Dependency of Communities upon the Utilities for Prosperity"

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For Use of Debating Clubs, Oral English
and Current Topic Classes

Issued By

ILLINOIS COMMITTEE on PUBLIC UTILITY INFORMATION

125 South Clark Street, Chicago, Illinois

Introductory

The marvelous development in the uses of electricity and gas and of means of communication and transportation has rightfully led to the characterization of the public utility industry of the nation as "the wonder industry of the twentieth century."

There is no man, woman or child in the nation who does not now, directly or indirectly, every moment of his or her life, receive benefits from these marvelous agencies. Whether we be awake or asleep these great public benefits are tirelessly at work providing for our convenience, happiness and prosperity and day by day, as our civilization grows and our standard of living becomes higher, their relationship to us becomes more and more intimate.

In the schools today are those who must only a short time in the future step into the places of the great inventors, developers and pioneers who in the last half century have given America these wonder works. There are countless others who will be in other occupations, but who will be thrifty and save and invest of their savings in this great industry so that the money may be available for its progress and development in the interest of all the people—rich and poor. All of those now in the schools will be patrons of these services—that is unavoidable unless there should be a wish to go back to the primitive ways of living.

It is because of this intense interest that today in the schools the pupils study so seriously the methods of production of the utility services; their history, the uses to which they are being put; their relationship to happiness and prosperity and attempt to fit themselves to become a part of this great industry which is so fundamental to the nation's life.

Students of the School of Journalism, University of Illinois, recently participated in a prize paper contest, the topic being "The Dependency of Communities Upon The Utilities For Prosperity." These young journalists delved into their assignment from many angles and developed many interesting facts. The judges of the contest consisted of three prominent newspaper men, who based their findings as to the better papers on (1) Accuracy of facts; (2) Method of handling assignment—style, etc.; (3) Cleanliness of copy and proper use of English. Seven of the stories picked by the judges as being among the best are printed in this bulletin.

How To Use This Bulletin:

Debating: Many topics are suggested for formal or informal debating.

(1)—Resolved: That present civilization could not exist without electric, gas, transportation and communication services.

(2)—Resolved: That Communities should give every encouragement to the developing of the public service facilities of the nation.

(3)—Resolved: That the prosperity and growth of the utility industry is fundamental to the growth of every community.

Rhetoric, Oral English, and Current Topic Classes:

(1)—Make a three minute review of any of the papers contained in this bulletin.

(2)—The value of utility service to the community.

(3)—What would happen to the values of all property if the utilities suspended operation.

For Additional Bulletins Please Address:

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The Utilities and Cinderella

By Miss Mary C. Funk, Bloomington, Ill.

"With a wave of her magic wand, the fairy godmother changed the pumpkin into a golden carriage and Cinderella, in her beautiful new clothes, rode off to the ball at the King's palace."

The story of Cinderella is not new to us—most of us grew up hearing it over and over, just as we have grown up with electric lights and running water, street cars, telephones and fast trains. And, like Cinderella, we do not realize until the clock strikes the midnight hour, or something happens to our conveniences, just how much we have prospered since our fairy godmother, the public utilities, came into our lives and bestowed favors. The drudgery of the kitchen work is over, the darkness of the nights with only a dying fire for light, have passed for us as well as for the scullery maid in the fairy tale.

Public utilities, as we understand the term, supply gas, water, electricity, heat and transportation, and also provide means of communication by telephone and telegraph, carry our household commodities as freight, express or baggage, store our valuables in ware-houses and our grain and food in elevators. It is very evident that present-day life requires and cannot exist without the service and products of these great enterprises organized for the public's benefit.

COMMUNITIES DEPENDENT ON UTILITIES

Just how much communities depend on these utilities for prosperity is shown in the case of towns which have been deprived of their services. Householders in Galena, for example, look with dismay at their gas stoves, heaters and other gas-using utensils. And they look with more dismay at their bills for coal stoves, oil lamps and such fixtures. All this came because the gas company, which had served Galena, the oldest city in the state, for seventy years, failed them when the rates were placed so low that a fair return could not be earned upon the investment. Business men of that city say that it is the most serious calamity that has ever befallen Galena, and everyone will feel the effect in the way of depreciated property values. And think of the inconvenience of it.

Illinois is an agricultural state much like South Dakota, where a survey of four counties was recently made, which revealed the pressing need of man-made power, instead of man-power. In sixty-one per cent of the farms, water had to be carried an average distance of seventy-two feet, and on one farm, the water supply was half a mile away. Women worked fifteen hours a day in summer and twelve in winter. No modern conveniences, such as running water, gas stoves or electric washing machines lighten the drudgery of their lives. Only nine farms had bath tubs, but eighty per cent had "tin Lizzies." Nearly everyone used oil lamps for light and wood stoves for heat. What would a survey of Illinois farms show? Probably, in most cases, the same dreary picture.

THE PUBLIC OWNS THE UTILITIES

Public utilities are truly public. Next to government bonds, securities of the Public Service Companies are more widely owned than any other class of investment. People in every walk of life own them,—the "butcher, the baker and candle-stick maker" as well as "doctor, lawyer, merchant, chief." Among the owners are many women, trust funds, hospitals, lodges, colleges and churches. The man who carries a life insurance policy in an old-time company has an interest in public utility securities, because practically all old-line companies own them. People are interested when and where their savings are invested, in this case in utilities, and are anxious for them to be successful and prosperous.

Prosperity is strictly an economic term. A community or a state, like an individual, is prosperous when it is doing well, when there is plenty of business conducted with a profit for those engaged in it.

Even before the days of public utilities, there were prosperous communities and individuals. A cave-man, in pre-historic days, may have been a person of importance with many flint axes, or an Indian a "heap big chief" with many ponies and much corn. Chicago "boomed" when extensive lake traffic began; the opening of the coal fields brought wealth to the southern part of Illinois.

PROSPERITY HINGES ON CONTINUED SERVICES

All prosperity depends on the exchange of goods or commodities, and involves production and distribution, or sales. A community which by accident, design or misfortune is poorly served by any of the public service corporations, is a community which necessarily is behind in its material development and endures a consequent loss of material advancement with attendant inconvenience and dissatisfaction.

The instant pure water ceases to flow through a city, death comes. If the great electrical plants should close, because of a coal shortage, for example, not only would the lights go out, but the machines in factories would "go dead." Confusion would follow dead telephone wires; disorder and panic would result from the stopping of street cars and means of transportation. All that is necessary for the support of the people and the maintenance of order would be at a stand-still.

Public utility services are no longer a luxury enjoyed by the few. They have long since been an urgent necessity of practically all urban residents and are rapidly being extended to meet the demands and needs of the rural community. For a few cents, the individual has at his or her disposal properties worth millions of dollars. For the simplest short telephone chat between neighbors, hundreds of dollars worth of property is used.

Public utilities become factors in the general prosperity of the people to the extent that their standards of living and lives are affected by the use of the public utility facilities, for what promotes the convenience and prosperity of the individual, contributes to the prosperity of society, generally.

Public Utilities; Their Nature and Functions

By Edward P. Leonard, LaGrange, Ill.

Fostered because necessary, public utilities have emerged almost overnight, as the most astounding social reality of the past fifty years.

Despite the view of some that the phrase is a big name which stands for a huge octopus, public utilities in reality are merely the unifying agency between man and the forces of nature. People need water and lighting facilities; they require telephone, telegraph and power service; and they must have a means of transportation. Hence the introduction and evolution of the so-called public utilities.

MODERN LIFE IMPOSSIBLE WITHOUT UTILITIES

Public utilities have at their foundation the mutual advantages which accrue through the delegation of various duties and responsibilities upon certain individuals. In earliest biblical times we find evidence of such delegated authority and the conclusion is inevitable that such was the origin of the present system. The principal mission of these selected individuals was better supervision, direction and regulation of community affairs for mutual and public benefit. The chieftain would gather his council of advisors around him and in this grouping we see tentatively represented the full organization of the modern public utility.

Present-day life is dependent upon the maintenance and the continuance of the public utility system. Without the thousands of utility organizations civilization would be stagnant.

Imagine everyone of us tilling the soil for our own food; pumping our water from wells; lighting our homes at night with candles or with kerosene; weaving our own clothes; all articles for our own existence being produced by ourselves. At what stage of the civilizing process would we be under such conditions? We would be back in the primitive days of the wilderness which little knew the future progress. Instead we work together, and thereby for each other; and by dividing the work centralize our efforts—thus improving our existence and reaping benefits otherwise unattainable.

400,000 OWNERS, 193,000 EMPLOYEES, 800,000 DEPENDENTS IN ILLINOIS

There are 400,000 separate owners of the public utilities securities in Illinois. These companies have 193,000 employees. The estimation that 600,000 others are dependent upon these workers means that probably 800,000 persons in the state are getting their livelihood directly from the work attendant with the production of these services; while another group of employees whose labor is dependent upon the materials and supplies purchased by these companies brings the total number of persons financially interested in public utilities up to 2,000,000. The wages alone of the workers employed in the utility industry amount to more than \$230,000,000 annually.

Illinois possesses 90 electric railway companies with 3,841 miles of tracks, representing an approximate investment of \$456,200,000. These railways in Illinois carry more than two billion car riders every year. Chicago, alone, has enough electric railway tracks to stretch from Lake Michigan to the City of New York and out into the Atlantic Ocean 400 miles.

Illinois now has more than 500 separate telephone companies owned by about 80,000 security holders, the majority of them residents of the communities where the companies give service. Over

1,200,000 telephones are in use, or about one to each five inhabitants. As for Chicago, it alone numbers more telephones within the city confines than the total number used in the combined countries of England, France, Italy, Spain, Greece, Portugal and Norway. Chicago daily handles an average of 3,000,000 messages.

COMMUNITIES WOULD BE ISOLATED WITHOUT UTILITIES

These facts indicate the amazing necessity of public utilities in the prevalent social life among the communities of the state for continued prosperity. It is an appalling thought to imagine the state suddenly cut off from these services. Think of the community within the state denied the means of transportation and communication. It would be more isolated and remote than a county in Borneo. If business were denied the use of power and telephone service the opinion is inevitable that everything would come to a halt.

Greater in social import, imagine each home within the community denied the use of light and water services, to say nothing of telephone service. Something like an actual test was afforded by the short suspension of street car facilities some months ago in Boston, Denver and Chicago which cities lost 50 per cent of their trade and 75 per cent of their labor and wages at those times.

In general, the greater the undertaking of the public utility, the greater the benefit to the consuming public. By acquiring efficiency of production the public utility is enabled to offer commodities of a better grade and lower cost to the communities in which these services are diffused. The public reaps the benefit of co-operative organization.

COMPANIES MUST BE PROSPEROUS

The greater the public support the greater the service which a utility is enabled to render. A financially impoverished utility cannot serve the public satisfactorily. The public utility business is not shrouded in mystery. Its principal problem is the problem of any commercial enterprise. Its product must be sold at a price which shows a margin over costs and it must continuously expand its facilities to meet the growth of the community served.

SERVE PUBLIC DIRECT FROM PRODUCER TO CONSUMER

Public utilities dealing in transportation, water, gas, electricity, telephone and telegraph services are practically the only agencies which serve communities directly from producer to consumer with no middleman. The gas plant is stationed at one end with a direct connection with your burner; the water works at one end with direct connection with your faucet; there is direct contact from your electric light or motor to the power house; the receiver and transmitter of your telephone connects you direct with the world.

Since they will be the first to reap the benefits inherent in great public undertakings, the people must encourage, foster and support the public utilities, giving them every opportunity to develop so that the prosperity and happiness of the people may be enhanced. The one fetish, the sole aim and purpose, the single ideal and ambition of the public utility is reflected in a single word—service.

Aladdin's Lamp Outdone

By George V. Buchanan, Jr., South Norwalk, Conn.

Aladdin pulled down the cuff of his shirt and gave the magic lamp a brisk polishing—and the genii towered before him. "Let there be light, and fetch me a thousand slaves," said Aladdin, and lo! there was light and a thousand slaves waited upon him.

But Aladdin wasn't so lucky after all. He just happened to be a bit more fortunate than his contemporaries. Now-a-days he'd consider it an inconvenience to have to rub the lamp each time he wanted service, knowing that Mr. Jones, next door, was getting the same service by merely pushing a button, turning on a tappet, or some other such simple movement of the hand.

ALADDIN'S MAGIC SURPASSED

Fantastic and breath-taking as are the Arabian Nights stories, they have a modern likeness in our every-day life—thanks to the public utility corporations. Every day we make use of scientific wonders, and we treat them as matters of course, coming from—we don't know where, nor do we care particularly. We do much as Aladdin did—take what we get, and treat it as a thing to be expected, after the novelty wears off. Yet they are of a nature so wondrous that were Aladdin to see them in operation today he would cast aside the lamp—considering it outclassed.

We turn a faucet and water gushes forth, hot or cold, in an amount that a dozen slaves could not carry, and it continues to flow until the simple turning of the faucet bids it cease. We push a button and a flood of light fills the room. By the same process we obtain electric energy that saves hours of hard and tiring labor. Instead of flying over Bagdad on a magic carpet we are rushed to all parts of the world by fast trains or by great ocean liners equipped with every comfort of our homes.

Our modern-day magic is produced by the public utilities. They furnish us with light, power, heat, transportation, water and communication. Their cost is practically negligible as compared with other living costs. During the war period, when all prices went soaring, utility rates were the last to advance and then in much less degree than any other prices.

Utility services are of comparatively recent origin. The telephone, for instance, was invented in 1876 but was not put into general use until as late as 1896.

In the duo-decade intervening the telephone spread its valuable services slowly, beginning with a small exchange in Bridgeport, Conn., three years after the invention. Since 1896, however, 35,000,000 miles of telephone wire have been stretched between homes and business houses all over the United States. The first successful electric railway began operations in 1888 and the carbon lamp was invented in 1879.

PLAY BIG PART IN DISTRIBUTION

All prosperity depends upon the exchange of goods or commodities. It involves production and distribution or sales. In this production the utilities play a big part through furnishing economical power, heat, communication and transportation.

The most simply equipped modern office building is absolutely dependent upon the utilities. The modern home would be maintained only with the utmost difficulty were it not for their services. Light, heat, water and fuel problems are solved by these agencies.

The disadvantages of regulation by municipalities of public utilities would be proven graphically in the event of a weak administration, a non-business administration or one that is "controlled." Schools could be closed for some time, courts dispensed with and it is possible that even fire and police protection could be done away with temporarily but the instant pure water ceases to flow, the sexton begins to work over-time. If electricity fails not only will lights go out, but machines and factories would cease operation, elevators would stop and men and women would be deprived of work which is life to them, and life and order to the city.

If street cars did not move the city would become stagnant. Confusion would reign if the telephone went "dead."

The modern community is dependent on water, gas, electricity, street railways, telephones and other public utilities. All stand through every minute of the year ready to serve and at very low wages; all of them for less than the man of the house spends on cigars, or the family for movies or for gasoline.

Without them we would be worse than Aladdin without his lamp so it is necessary that we protect them. We cannot afford to experiment with them. For, once they cease—then Aladdin would indeed have it "on" the modern, who, having the wonderful lamp, would have rubbed off its magic gloss and made it worse than useless.

Public Utilities - Pioneers of Advancing Civilization

By David Newton Jamison, Burlington, Ia.

Throughout the ages, civilization and social progress can be traced directly to improvements upon three essential factors of human society—the rapidity of communication between communities, the degree of comfort in the average home, and the ease and speed of transportation from one community to another.

Progress was slow and halting in the time of the ancients and during the middle ages, because communication was dependent upon the tedious process of sending letters by special hired messengers,—transportation

was dependent upon slow-moving, irregular sailing vessels and caravans, while the home was a rude hut or a chilly, damp and gloomy castle. Today, progress is bounding forward at a constantly accelerated and breath-taking speed, due to the enormous development which modern inventions have brought to these three essential factors. These improvements, which have become vital now to modern advancement and comfort are known as public utilities, and include the telephone, the electric street railway, gas and electricity, water, power and heat.

TELEPHONE ELIMINATES DISTANCE

One of the most romantic as well as auspicious moments of human history took place when the first telephone was installed. The telephone has eliminated distance, and brought the entire world within the beck and call of everyone. Whether Mr. Common Citizen wishes to chat with his neighbor next-door, or with his business associate in the next state, he need not leave his own living-room. He may avert death in his family by getting immediate contact with a physician at a time of stress. He may be in San Francisco and talk to his friends in New York. He may save hundreds or even thousands of dollars in a business deal by being able to make rapid communication over the telephone. In countless ways, this public utility alone saves daily a prodigious total in time and money.

There were 11,716,520 telephones and 21,175 public exchanges in use in the United States during 1917. The industry gave employment to 262,629 persons, who, with the families dependent upon their earnings for support, aggregated over 1,000,000 persons. The plant and equipment cost \$1,492,329,015.—representing the investment of savings of more than 900,000 thrifty Americans. And since 1917, more than 750,000 telephones per year have been installed.

It is significant to note that Illinois, one of the leading and most progressive states in the Union, has more telephones than are to be found in the entire continents of Asia, Africa, and South America,—or more than there are in England, France, Italy, Spain, Greece Portugal and Norway combined.

Even more impressive figures could be produced for some of the other public service utilities. It is known that the total amount of gas sold in the United States has shown an average annual increase since 1908 of approximately 13 per cent, the rate of annual increase being greater in 1919 than in any preceding year. The gas and electric companies of Illinois daily serve practically 6,000,000 persons. The street and

electric railways of the state carry every year more than 2,000,000,000 passengers,—a total which is more than equal to the total population of the United States plus that of the entire British Empire, including India, Canada, Australia, plus that of France and all her colonies, all the rest of Europe, the vast Russian Empire and all the teeming millions of China and Japan.

RICH AND POOR SERVED ALIKE BY UTILITIES

The public utilities are, in reality, the most democratic of commercial institutions. Patrons are of all conditions and all classes in the human scale. They are served with more uniformity and less discrimination by gas, street railway, electric, telephone and water companies than by any other business. The widowed washer-woman is supplied with gas of the same heating value as that delivered the wife of the banker who employs her, and both pay the same rate; electricity of equal voltage and price is delivered to mansion and cottage; all fares look alike to the street car conductor; the telephone operator responds with equal celerity to the voice of the clergyman or the bartender.

Not only in service but in business opportunity are the utilities democratic. Any citizen may invest—frequently he is solicited to put his savings into the progressive service features of modern society. The present capitalization of public utility companies of the nation is estimated at more than \$15,000,000,000, and the dividends as well as the service are open to all citizens.

Let any one consider what his home life, his pleasures or his business would be like if there were no public utilities. What would be left of modern life, in city or in the country alike, after one had deducted the telephone, the electric light, electric power from industry, electric household devices, heat, gas, the street-car, the telephone and interurban? Not only is future progress and prosperity but also the maintenance of present conditions dependent upon the public utilities.

What The Utilities Mean To Every Family

By Laura Eleanor Smith, Urbana, Ill.

Did you ever stop to think what you would do if all public utility service was taken from you, suddenly; if your electricity, gas, water, telephone, telegraph and street railway services were all removed from your reach?

Let us take just the common, every-day sort of citizen, Mr. N. E. One, who lives in a suburb of Chicago, and see what his life would be for a few hours, without public utilities.

Mr. One gets up at 6:45, Mrs. One stirs a little, then says: "Norm, dear, when you turn that light on, will you please put a piece of paper around this side of it, so the light won't shine in my eyes?"

"Norm, dear" replies that he will be most pleased to do so. He gets to the light button, by falling over a chair which was not in its usual place, and pushes it. "What's the matter with this fool light?" he somewhat disturbedly inquires of the now wide-awake Mrs. One. "It won't turn on! Guess its burnt out." He shuffles to the window and slams it down. "Good heavens, Louise, but it's cold in this room! I'll get dressed and get a new fuse from the basement, for that light." He goes to the bath-room and punches the button. No light. Now rather angry, he feels his way to the basin and turns on the faucet. No water!

He tries the cold faucet. Ditto there. Bath-tub, same way. He hurries back to the bed-room.

"Louise, there's something wrong with the water supply. The faucets won't turn it on. What on earth do you suppose can have happened? I can't shave and my face feels like a wire hair-brush. And the light doesn't light in there either, so I guess it's burnt out on this whole floor."

HOUSEHOLD DEMORALIZED BY FAILURE OF UTILITIES

He dresses clumsily and stumbles down-stairs to the lower floor. After trying the lights there and in the basement, he becomes thoroughly alarmed. He hurries up-stairs. "Louise, something dreadful has happened, the lights are off all over the house. There are no street lights either."

"Oh, Norm! I wonder if Billy and Ned are all right! Go right in there, please and see. Oh, this worries me!"

Norm returns and reports that Billy is tossing a little restlessly but that both he and Ned are sound asleep, and all right. Mrs. One is relieved yet worried about the whole situation. It is now getting light, she dresses while her husband builds the furnace fire. "Heavens but my face feels dirty: And there's no

water," she says to herself. Hearing her husband on the first floor, she calls down: "Will you please light the gas and put the oat-meal on? It wasn't nearly done, last night."

She hears him strike the match, then he swears. She half-smiles, she knows he is rather upset. A minute later she goes down-stairs to the kitchen, where she finds Norm fooling with the gas-stove. "It doesn't light, Louise. I've tried 'em all, even the oven."

"That's odd, dear, that all these misfortunes should descend upon us at once. I'm going to call Mary Ruyle and ask her if she's having all this trouble. She'll be up now."

"Yes, John goes to the city on the same interurban that I do." Mrs. One is now at the telephone. She takes down the receiver and listens a moment. "Norm, this line is dead! It hasn't even that 'telephone buzz' that shows that it is alive!" Mr. One listens a minute then agrees with his wife. Both are puzzled as to what this means.

"Well, Norm, we'll have to eat what is in the cupboard. I can't cook. You go and wake the boys, while I get out the cold potatoes." He goes up-stairs, then in a few minutes his wife hears him returning to the kitchen. "Louise, you'd better go up and see what is the matter with Billy. He has fever. Suppose he took cold skating yesterday. He got awfully hot." But Mrs. One doesn't hear him. She is hurrying up the stairs.

DOCTOR COULD NOT BE REACHED

"Norman (she never calls her husband that unless she is angry or frightened) you call Dr. Wilson. I'm afraid Billy is awfully sick. I've gotten Ned out of there and opened the windows. Light the fire and heat the goose-grease. It's up in the top of the east cup-board."

"Louise, you know the telephone and the gas are gone! I'll go down to the station and send a telegram. Dr. Wilson is some ten miles from here." He grabs his hat and hurries out.

Arriving at the station, he goes up to the operator and asks for a telegram blank. "No juice, Mr. One. Sorry. Is it anything serious?"

"Then I'll have to get that 8:03 to the city! Let's see what time it is." He tugs impatiently at his watch.

"No use, Mr. One. The cars aren't running. There's no juice, I told you."

* * *

There's an old proverb—"You never miss the water 'till the well runs dry." And that proverb could be applied very nicely to the public utility of today. We take it too much for granted, just as we do every other good gift that we are accustomed to; health, wealth and friends, for instance; but all that needs to be done to have us truly appreciate these things that we have to be thankful for, is to have them taken away from us.

Community Prosperity and The Utilities

By Mae J. Anderson, Wheaton, Ill.

It has been truly said that America is the land of prosperity. And this present prosperity is largely but the outgrowth of the co-operation between the public and the public utilities.

The general term "public utility" or public service corporation embraces all property devoted to a public use and in which the public has an interest. It includes the street railways, steam railways and their terminals, electricity, gas, telegraph, telephone, water supply and wireless agencies serving the public. The extent to which the vast commercial and manufacturing transactions of our nation are dependent upon the continual development and the able management of such public service corporations is not fully understood or appreciated by the general public.

Picture if you will a community which by accident or misfortune lacks the service of the public utilities. The unpaved streets are dark or maybe here and there a coal oil lamp may chance to burn. Water is carried from the well and the meals are prepared on the old-fashioned cook stove. The life of this community is fully twenty-five years behind the present-day material development.

As the density of the population increases, standards of living become higher and our daily life becomes less individualistic and more complex. Consequently, many services performed in the past by the individual are now being rendered collectively for the community by a utility, and this tendency will increase more and more in the future, for utility services are the developers and conservers of our civilization and Western Civilization viewed sociologically is ever on the upward trend.

UTILITIES DEVELOPERS OF CIVILIZATION

The public service enterprises of the United States have been and always will be one of the greatest factors in the development of the country. There are still vast areas which require the services of such companies, and al-

ready served communities require continual extensions to the operations of their public utility corporations. Opportunities are continually presenting themselves and there is a great demand for further extensions of service by these corporations.

But before further extensions can be made there must be just co-operation between the public and the utilities, for no utility can be permanently prosperous or can foster the development of the country without the whole-hearted co-operation of the public. A clear comprehension of the reciprocal duties will lessen controversies and retaliatory actions, consequently fostering a co-operative spirit which will inevitably aid in the process of the community and the state.

Back of every public service corporation there are three fundamental elements. They are the inventors, the investors and individual brains. The inventors are those geniuses like Edison who have made possible all these great modern accomplishments which mean service and comfort to the public. Electric light, heat, power, transportation and communication are almost entirely the product of the inventor's work for the last twenty-five years.

INVENTORS PROMOTERS INVESTORS UNBREAKABLE CHAIN

The investors, the second element contained in utility service, are the people of the state who have purchased stocks and bonds with the expectation that their invested capital will earn a fair return for them and help supply service to the community.

The other element is individual brains and is personified in the man who furnishes ideas, time and experience to further the development of the community needs. These three elements of service are dependent one upon the other and are linked together in an unbreakable chain. Were it not for the geniuses who made possible all these great inventions such as the telephone, telegraph, street car and countless others, America would still be wallowing in the civilization of

centuries ago and the modern communities of today would not be in existence.

Were it not for the capital of the investor the promoter or the man with the "idea" would not find it possible to carry out his plans of organizing companies which give service to the public. All three are indispensable to one another. If any one of them were to decrease its contributions of service the community

would immediately lag and consequently the prosperity of the nation would be considerably lessened.

The public service enterprises of the United States of America have been one of the greatest factors in the development of this country and as the wheels of time speed on, fair-minded and progressive people will begin to realize more and more how the community and the state depends upon these enterprises for prosperity.

The Twentieth Century Miracle--The Utilities

By Tierra Farrow, Urbana, Illinois.

The greatest miracle of the twentieth century has been wrought by the service of the public utilities. Less than half a century ago we were living in the electric lightless, gasless, telephoneless, telegraphless, street carless age.

Today we press a button and a bright light instantly floods the house. Our neighbor picks up a telephone receiver and San Francisco or New York immediately answers his call. We turn a lever and our gas is ready for heating or cooking. We board a street car in the early morning and are whisked away to the office or factory.

Mr. Business man wishes to talk with London or China—within a few minutes his message is flying through the air without the aid of a wire, or through cables under the ocean. Great engines in great industries, having the force of thousands of horse power start the wheels of the machines in motion that give employment to thousands by the mere pushing of a switch.

These services are at our command so easily and so cheaply that we never stop to think what would happen if, for some reason, the telephones, street cars, electric lights, gas or any other public utilities should suddenly cease to function.

The history of the utilities is an interesting one, woven, as it is around the discoveries of our great men; Jeans Pierre Minkler, Samuel F. B. Morse, Thomas A. Edison, and Alexander G. Bell.

GAS BIG FACTOR IN NATIONAL PROSPERITY

The first record of gas being distilled from coal and used for lighting was at the University of Louvain, when, in 1774, Jeans Pierre Minkler used it to

light his lecture room. Several early chemists made reports on the discovery of the properties of natural gas and the products of coal distillation, but the discovery of its commercial value was the result of the work of William Murdock of England, and Phillips Le Bon, of France. Today the annual production of gas in the United States is about eight hundred billion cubic feet, the gas traveling through 70,000 miles of mains, serving a population of nearly fifty-five millions of people with fuel and light. Gas is only just beginning to come into its own as an important factor in the conservation of natural resources whereby the energy stored in coal is more fully utilized by converting it into gas and coke instead of burning straight coal to produce energy.

The first experiments toward establishing a system of telegraphing were begun toward the close of the eighteenth century. In 1753 a writer for Scots Magazine detailed a method by which any message might be spelled out. His plan was to provide between two points a wire, insulated throughout its length, for each letter of the alphabet, and to spell out the message

by means of indicators that would be operated at the receiving end by frictional electricity.

From that time on scientists everywhere began most exhaustive studies of the possibilities of electrical transmission of intelligence. Samuel F. B. Morse became a leader in this work and made a successful demonstration in 1844, which proved the nucleus of the Western Union Telegraph Company, which was organized in 1851.

To Thomas A. Edison clearly belongs the credit of creating the modern electric central-station system for light and power. In the winter of 1880-1881 Mr. Edison installed a central-station system at Menlo Park, N. J., for the purpose of demonstrating the success of what was popularly called the subdivision of the electric light.

ELECTRICITY A WONDER WORKER

Wonderful has been the accomplishment of applied electricity since then. It has brought light and cheer to the depressed, strength to the weak and relief to the weary. It is found in the home, the office, the hospital, the laboratory, the workshop, the factory, the rolling mill, the mine, the store, on the farm, in transporting food and supplies across the country—practically everywhere that heat, light and power are required.

Next came the telephone. The first instrument was a sort of crude harmonica with a clock-spring reed, a magnet and a wire. Capitalists laughed at it and refused several years to finance the "scientific toy." In March 1876, Alexander G. Bell sent through a crude telephone, his own invention, the first spoken words ever carried over a wire, and the words were heard and understood by his associate, Thomas A. Watson, who was at the receiver less than 100 feet away.

In January, 1915, the same Mr. Bell, sitting with the transmitter of a telephone to his lips, talked to the same Mr. Watson in San Francisco over a wire stretching 3,400 miles across the continent and part of a system that includes 13,000,000 telephones, connected by 21,000,000 miles of wire.

Today the telephone systems in America have strung enough wire to go around the earth 1,400 times, or 35,000,000 miles of wire; they have placed one telephone for every seven persons in the country; over these systems more than twenty-one billion calls are made in one year—over ten times the number of people on earth.

Utility services are the outgrowth, developers, and conservers of our civilization and form an inseparable part of our daily life. As the density of population increases, standards of life become higher and our daily life more complex. More and more services, performed in the past by the individuals, are now rendered collectively for the community by a utility, and this tendency will increase year after year.

